

A method for testing a multi-device enclosure that contains multiple devices, the method comprising:

controlling a number of bypass circuits to bypass a number of external communications medium connectors to isolate the multi-device enclosure from an external communications medium;

testing the multi-device enclosure; and

when the multi-device enclosure passes the testing,

controlling a number of bypass circuits to connect the number of external communications medium connectors to the external communications medium.

- The method of claim 1 wherein testing the multi-device enclosure further comprises:
- 15 controlling a number of bypass circuits to isolate the devices from an internal communications medium;

testing the internal communications medium;

when the internal communications medium passes the testing,

for each device,

controlling a bypass circuit to connect the device to the internal communications medium,

testing the device, and

when the device fails testing,

controlling a bypass circuit to disconnect the device from the

25 internal communications medium, and

> returning an indication that the testing of the multi-device enclosure has succeeded; and

when the internal communications medium fails the testing,

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returning an indication that the testing of the multi-device enclosure has failed.

- 3. The method of claim 2 wherein the external communications medium and the internal communications medium are both portions of a fibre channel arbitrated loop.
 - 4. The method of claim 3 wherein controlling a number of bypass circuits to bypass a number of external communications medium connectors to isolate the multi-device enclosure from an external communications medium further includes:

controlling a bypass circuit to bypass a primary external communications medium connector to isolate the multi-device enclosure from the upstream portion of the fibre channel arbitrated loop; and

controlling a bypass circuit to bypass an expansion external communications medium connector to isolate the multi-device enclosure from the downstream portion of the fibre channel arbitrated loop.

5. The method of claim 3 wherein the multi-device enclosure may be connected to two fibre channel arbitrated loops and wherein controlling a number of bypass circuits to bypass a number of external communications medium connectors to isolate the multi-device enclosure from an external communications medium further includes:

controlling two bypass circuits to bypass two primary external communications medium connectors to isolate the multi-device enclosure from the upstream portions of two fibre channel arbitrated loops; and

controlling two bypass circuits to bypass two expansion external communications medium connectors to isolate the multi-device enclosure from the downstream portions of two fibre channel arbitrated loops.

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- 6. The method of claim 3 wherein testing the internal communications medium includes sending a loop initialization primitive around the internal portion of the fibre channel arbitrated loop.
- 5 7. The method of claim 3 wherein testing a device includes: sending a loop initialization primitive around the internal portion of the fibre channel arbitrated loop.
- 8. The method of claim 7 wherein testing a device further includes:
 issuing commands to the device to cause the device to undergo a self-test and to solicit information from the device about the device.
 - 9. The method of claim 8 wherein the commands issued to the device are small computer systems interconnect enclosure services commands.

10. A method for testing a multi-device enclosure that contains multiple devices, the method comprising:

controlling a number of bypass circuits to isolate the devices from an internal communications medium;

when the internal communications medium passes the testing,

for each device,

controlling a bypass circuit to connect the device to the internal communications medium,

testing the device, and

when the device fails testing,

controlling a bypass circuit to disconnect the device from the internal communications medium, and

returning an indication that the testing of the multi-device enclosure has succeeded; and

when the internal communications medium fails the testing,
returning an indication that the testing of the multi-device enclosure has
failed.

5 11. The method of claim 10 further including:

when a device malfunctions during operation of the multi-device enclosure, controlling a bypass circuit to disconnect the device from the internal communications medium.

10 12. A self-testing multi-device enclosure comprising:

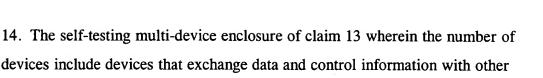
an internal communications medium;

- a number of devices interconnected by the internal communications medium;
- a number of connectors that connect the multi-device enclosure to an external communications medium;
- bypass circuits that can be controlled to isolate devices from, and connect devices to, the internal communications medium;

bypass circuits that can be controlled to isolate connectors from, and connect connectors to, the external communications medium;

a processor; and

- a self-test routine that runs on the processor to test the internal communications medium and the number of devices and to control bypass circuits to isolate the multi-device enclosure during self-testing from the external communications medium and to isolate the devices from the internal communications medium.
- 25 13. The self-testing multi-device enclosure of claim 12 wherein the internal communications medium and the external communications medium are portions of a fibre channel arbitrated loop.



- 5 15. The self-testing multi-device enclosure of claim 14 wherein the self-test routine controls a number of bypass circuits to bypass a number of connectors to isolate the multi-device enclosure from the external communications medium; tests the multi-device enclosure; and when the multi-device enclosure passes the testing,
- connectors to the external communications medium.
 - 16. The self-testing multi-device enclosure of claim 15 wherein, after isolating the multi-device enclosure from the external communications medium, the self-test routine tests the multi-device enclosure by:

controlling a number of bypass circuits to isolate the devices from the internal communications medium;

testing the internal communications medium;

devices connected to the fibre channel arbitrated loop.

when the internal communications medium passes the testing,

20 for each device,

controlling a bypass circuit to connect the device to the internal communications medium.

testing the device, and

when the device fails testing,

25 controlling a bypass circuit to disconnect the device from the internal communications medium, and

returning an indication that the testing of the multi-device enclosure has succeeded; and

when the internal communications medium fails the testing,

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returning an indication that the testing of the multi-device enclosure has failed.

17. The self-testing multi-device enclosure of claim 16 wherein controlling a number of bypass circuits to bypass a number of external communications medium connectors to isolate the multi-device enclosure from an external communications medium further includes:

controlling a bypass circuit to bypass a primary external communications medium connector to isolate the multi-device enclosure from the upstream portion of the fibre channel arbitrated loop; and

controlling a bypass circuit to bypass an expansion external communications medium connector to isolate the multi-device enclosure from the downstream portion of the fibre channel arbitrated loop.

- 18. The self-testing multi-device enclosure of claim 17 wherein testing the internal communications medium includes sending a loop initialization primitive around the internal portion of the fibre channel arbitrated loop.
 - 19. The self-testing multi-device enclosure of claim 17 wherein testing a device includes:

sending a loop initialization primitive around the internal portion of the fibre channel arbitrated loop.

20. The self-testing multi-device enclosure of claim 19 wherein testing a device further includes:

issuing commands to the device to cause the device to undergo a self-test and to solicit information from the device about the device.